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CLAIMS

[Claim(s)]

[Claim 1] In the system which communicates between the called party terminals connected through the call origination side exchange and the called party exchange in the end of the end of a call origination side edge, and a call origination side edge Communication system characterized by transmitting the sound signal beforehand memorized by the call origination side exchange as either [at least] the ringing-tone signal transmitted from the call origination side exchange in the end of a call origination side edge at the time of the call origination actuation by the end of a call origination side edge, or a busy correspondence number.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] Two or more telephones are connected through the exchange and a line network, and this invention relates to the communication system which communicates a message etc. mutually.

[0002]

[Description of the Prior Art] If the hand set of call origination side telephone is taken up from the body of telephone when it is going to talk over the telephone mutually by telephone through a public line network, an off-hook signal will be generated from telephone and it will be transmitted to the exchange through a subscriber line. The exchange answers a letter in a dial tone signal to this, and, in the case of dial type telephone, in the case of a dial signal and push button type telephone, stands by a push button signal (these are named a dial signal generically). If a dial signal is transmitted from call origination side telephone, the call origination side exchange will transmit the discernment data of called party telephone to the called party exchange through a relay center etc.

[0003] If called party telephone is not during the conversation, the called party exchange will transmit a ringing-tone signal to called party telephone, the control signal

which calls to the call origination side exchange and shows an inside condition will be transmitted, and the call origination side exchange will transmit a ringing-tone signal to call origination side telephone. If the hand set of called party telephone is taken up, a line of contact will be formed among both and a message will be performed. On the other hand, if called party telephone is during the conversation, the called party exchange will transmit the control data in which a during the conversation condition is shown to the call origination side exchange, and the call origination side exchange will transmit a busy correspondence number to call origination side telephone.

[0004]

[Problem(s) to be Solved by the Invention] In such conventional communication system, a calling party will continue hearing a call signal sound until the hand set of called party telephone is taken up. A call signal sound is sound with a single frequency of 400Hz, and it is useless to only continue hearing this sound. Moreover, although a busy correspondence number is transmitted to call origination side telephone in a procedure which was mentioned above when called party telephone is during the conversation, hearing the busy correspondence number which is a 133Hz intermittent ringing may be continued, and, also in such a case, futility has arisen.

[0005] the purpose of this invention is offering the communication system which canceled the above-mentioned technical problem, prevented the situation a ringing-tone signal, a busy correspondence number, etc. having heard [continue] a meaningless sound at the time of use of communication system, and useless time amount's having passed, boiled the utilization ratio markedly, and improved.

[0006]

[Means for Solving the Problem] In the system by which this invention communicates between the called party terminals connected through the call origination side exchange and the called party exchange in the end of the end of a call origination side edge, and a call origination side edge It is the communication system characterized by transmitting the sound signal beforehand memorized by the call origination side exchange to either [at least] the ringing-tone signal transmitted from the call origination side exchange in the end of a call origination side edge at the time of the call origination actuation by the end of a call origination side edge, or a busy correspondence number.

[0007]

[Function] In the communication system according to this invention, when performing call origination actuation by the end of a call origination side edge The period when the called party terminal is called, and the ringing-tone signal transmitted from the call origination side exchange in the end of a call origination side edge, When called party telephone is during the conversation, it replaces with either at least and the sound signal of the busy correspondence number too transmitted from the call origination side exchange beforehand memorized by the call origination side exchange is transmitted. This sound signal can make the public contents of information, such as information of the election day of Election, advertisement of private enterprises, etc. the sound signal of the class of arbitration, therefore, a calling party replaces with continuing hearing meaningless tone, such as said ringing-tone signal, busy correspondence number, etc., and consuming useless time amount, and useful information can be heard, and the utilization ratio of communication system boils markedly the information on the public new product of the holding schedule of an event, or private enterprises etc., and

improves.

[0008]

[Example] Drawing 1 is the block diagram showing the configuration relevant to the exchange 1 in the communication system of one example of this invention, and drawing 2 is the block diagram showing the configuration of communication system 2. Two or more telephones 3 are mutually connected through the exchange 1 and a line network 5, and communication system 2 changes. The exchange 1 attaches and shows suffix r to reference marks 1 and 3 here, when suffix t is attached and shown in reference marks 1 and 3 when telephone 3 becomes a call origination side, and becoming a called party.

[0009] The exchange 1 contains the off-hook detecting element 5 which detects the off-hook signal of each telephone 3, and the dial signal detecting element 6 which detects the dial signal mentioned above from telephone 3. The line control section 7 carries out closing motion control of the telephone line with a line network 4 or each telephone 3, and the network control section 8 controls transmission and reception of a signal with a line network 4.

[0010] On the other hand, the dial tone signal generator 9, the busy correspondence number generating section 10, and the ringing-tone signal generator 11 which generate the dial tone, busy tone, and ringing tone which were explained by the term of the conventional technique, respectively are prepared for the exchange 1. Moreover, the voice Records Department 12 which records voice which is mentioned later separately from these on record media, such as RAM (random access memory), ROM (read-only memory) or EEPROM (ROM in which writing/elimination is possible), and a magnetic tape, is used. Based on operating state which the exchange 1 mentions later in the change-over section 13, any one is chosen and these transmit a corresponding sound to telephone 3.

[0011] Drawing 3 is the perspective view of telephone 3, and drawing 4 is the block diagram showing the electric configuration of telephone 3. The dial circuit 14 which sends out said dial signal to the exchange 1, and a speaking circuit 15 are established in telephone 3, and the sound signal output from a speaking circuit 15 is outputted to the loudspeaker 17 of a hand set 16, and the sound signal from the microphone 18 of a hand set 16 is sent out to the exchange 1 through a speaking circuit 15. Moreover, telephone 3 is equipped with the storage section 19 which memorizes the ringing tone reproduced based on a ringing-tone signal which is later mentioned from the exchange 1, and the sound data memorized by the storage section 19 are read by the playback control section 21 to the bottom of control of CPU (central-process circuit)20, and are reproduced from a loudspeaker 22.

[0012] Such telephone 3 contains the body 23 of telephone, and said hand set 16, as shown in drawing 3. In the actuation side 24 of the body 23 of telephone, the operating button group 25 containing character **, such as number buttons, such as "0" for inputting the telephone number etc., "1", -- "9", "*", and "#", and the various function button groups 26 are arranged.

[0013] Drawing 5 is drawing explaining actuation of communication system 2. Drawing 1 - drawing 3 are referred to collectively. Drawing 5 (1) shows the case where a message is succeedingly carried out to call origination actuation. If a hand set 16 is taken up from the body 23 of telephone in 3t of call origination side telephones, the off-hook signal S1 will be transmitted to the exchange 1, the off-hook detecting element 5

which is 1t of call origination side exchanges will control the change-over section 13, if the off-hook signal S1 is detected, and the dial tone signal S2 from the dial tone signal generator 9 is transmitted to 3t of call origination side telephones. In this phase, 1t of call origination side exchanges will be in the condition that the dial signal from 3t of call origination side telephones is receivable.

[0014] Next, if the dial signal S3 is transmitted from 3t of call origination side telephones, 1t of call origination side exchanges will detect this by the dial signal detecting element 6, and they will transmit the call-ed machine recognition signal S5 to called party exchange 1r through the line control section 7 and the network control section 8. Called party exchange 1r detects whether called party telephone 3r specified with the call-ed machine recognition signal S5 concerned is in a during the conversation condition, and if it is not during the conversation, it sends out the ringing-tone signal S6 to the called party telephone 3r concerned. In called party telephone 3r, ringing tone occurs from said loudspeaker 22.

[0015] On the other hand, 1t of call origination side exchanges receives said dial signal S3, they control the change-over section 13 by the phase which transmitted the call-ed machine recognition signal S5 to called party exchange 1r, and send out ringing-tone signal S4 from the ringing-tone signal generator 11, or send out the sound signal AS from the voice Records Department 12.

[0016] You may make it the information of the various information corresponding to emergencies, such as disaster, or the information of an instruction used for the sound signal recorded on the voice Records Department 12 here corresponding to the area in which the information of the information of the election day of the head of a national election or all-prefectures cities, towns and villages or assemblyman Election of the self-governing body concerned, the schedule of various kinds of public events, etc. may be used for, or 1t of call origination side exchanges is established. Moreover, of course, institutional advertising or a new product advertisement of private enterprises etc. may be used.

[0017] When such sound signals are the various advertisements of private enterprises, you may make it pour two or more kinds of advertisements continuously using an endless tape etc. Moreover, in this way, when ringing-tone signal S4 is changed into the sound signal AS of the advertisement of private enterprises etc., the accounting which reduces the phonecall charges to the 3t of the call origination side telephones concerned etc. based on a special contract with the owner of 3t of call origination side telephones is also possible.

[0018] If a hand set 16 is taken up by called party telephone 3r in the call condition over called party telephone 3r, the off-hook signal S7 is transmitted to called party exchange 1r, and, in response, called party exchange 1r sends out the message path formation demand signal S8 to 1t of call origination side exchanges. 1t of call origination side exchanges can constitute a message path between 3t of call origination side telephones, and called party exchange 1r, and, thereby, message S9 can be sent in response and received by 3t of call origination side telephones, and called party telephone 3r.

[0019] Drawing, 5 (2) shows the case where called party telephone 3r is during the conversation. It is the same as that of the explanation in drawing 5 (1) until it transmits the dial signal S3 to 1t of call origination side exchanges and 1t of call origination side exchanges transmits the call-ed machine recognition signal S5 to called party exchange

1r, after 3t of call origination side telephones is off-hook. If called party telephone 3r detects whether it is during the conversation and called party exchange 1r is during the conversation as mentioned above here, the busy condition signal S10 will be transmitted to 1t of call origination side exchanges. In response, 1t of call origination side exchanges controls the change-over section 13, and they send out the busy correspondence number S11 from the busy correspondence number generating section 10 to call origination side telephone 3p. This will hear busy tone by 3t of call origination side telephones.

[0020] It is possible to replace with this busy correspondence number S11, and to consider as the sound signal AS which was mentioned above in this invention. In this case, since it is necessary to distinguish from the sound signal AS exchanged by ringing-tone signal S4, you may make it repeat the message of the purport current [whose] is in a call condition, or the purport whose called party telephone 3r is during the conversation said various information sentences or in the intervals of advertising.

[0021] in case it is going to talk over the telephone by this example using telephone 3 as mentioned above, the period which is calling called party telephone 3r, and the situation which continues hearing a meaningless ringing-tone signal avoid -- having -- various kinds -- useful information, such as public information, and institutional advertising or a new product advertisement of private enterprises, can be heard, the communication system whose utilization ratio was markedly alike and improved by this can be attained.

[0022]

[Effect of the Invention] It replaces with either at least and the sound signal of the period when the called party terminal is called when performing call origination actuation by the end of a call origination side edge, if this invention is followed as mentioned above, the ringing-tone signal transmitted from the call origination side exchange in the end of a call origination side edge, and the busy correspondence number too transmitted from the call origination side exchange when called party telephone is during the conversation beforehand memorized by the call origination side exchange is transmitted. This sound signal can make the public contents of information, such as information of the election day of Election, advertisement of private enterprises, etc., the sound signal of the class of arbitration, therefore, a calling party replaces with continuing hearing meaningless tone, such as said ringing-tone signal, busy correspondence number, etc., and consuming useless time amount, and useful information can be heard, and the utilization ratio of communication system boils markedly the information on the public new product of the holding schedule of an event, or private enterprises etc., and improves.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the configuration relevant to the exchange 1 of one example of this invention.

[Drawing 2] It is the block diagram showing the configuration of communication system 2.

[Drawing 3] It is the perspective view of telephone 3.

[Drawing 4] It is the block diagram showing the electric configuration of telephone 3.

[Drawing 5] It is drawing explaining the operating state of communication system 2.

[Description of Notations]

1 Exchange

1t Call origination side exchange

1r Called party exchange

2 Communication System

3 Telephone

3t Call origination side telephone

3r Called party telephone

10 Busy Correspondence Number Generating Section

11 Ringing-Tone Signal Generator

12 Voice Records Department

13 Change-over Section

[Translation done.]